

Composite Riflescope

At right, an armored "knight" is holding a rifle fitted with an advanced target riflescope made of composite material instead of the aluminum commonly employed in scopes; the imaginative photo is used in advertisements for the Armor-Sight™ riflescope developed by Bushnell Division of Bausch & Lomb.

The Armor-Sight combines Bausch & Lomb's world-renowned optics with a graphite composite — called Graphlon VI — developed for space applications.

"The tube is formed in the same manner as vital space vehicle components," says astronaut Joe Engle, research consultant to Bushnell, in company ads. "Miles of tough graphite fibers woven in a sophisticated matrix are set in polymer resins. The finished product is a riflescope housing that is strong, light, stable and protective of the scope's precise internal optics."

In addition to getting a 10 percent weight reduction in comparison with aluminum scopes, Bushnell got an extra advantage: the material's thermal expansion coefficient is near zero, which obviates problems of optical distortion due to heat expansion and cold contraction. Armor-Sight is fogproof and waterproof, and its advanced multicoated optics deliver maximum light transmission to brighten target images.

The NASA Industrial Applications Center — University of Southern California (NIAC/USC), Los Angeles, California provided an assist to Bushnell in the development of Armor-Sight. NIAC/USC conducted literature searches of the NASA data bank and other data bases to supply the company extensive technical information on graphite composites and, in particular, information of a problem-solving nature that enabled Bushnell R&D engineers to overcome a bonding difficulty and a porosity problem that had cropped up in the course of the development.



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